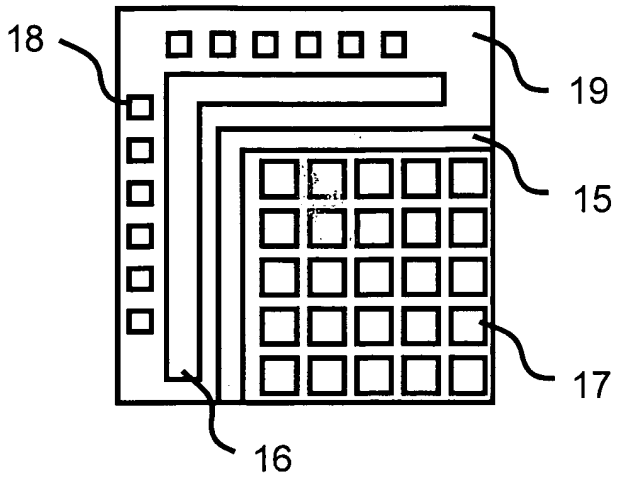


Figure 1

Prior Art

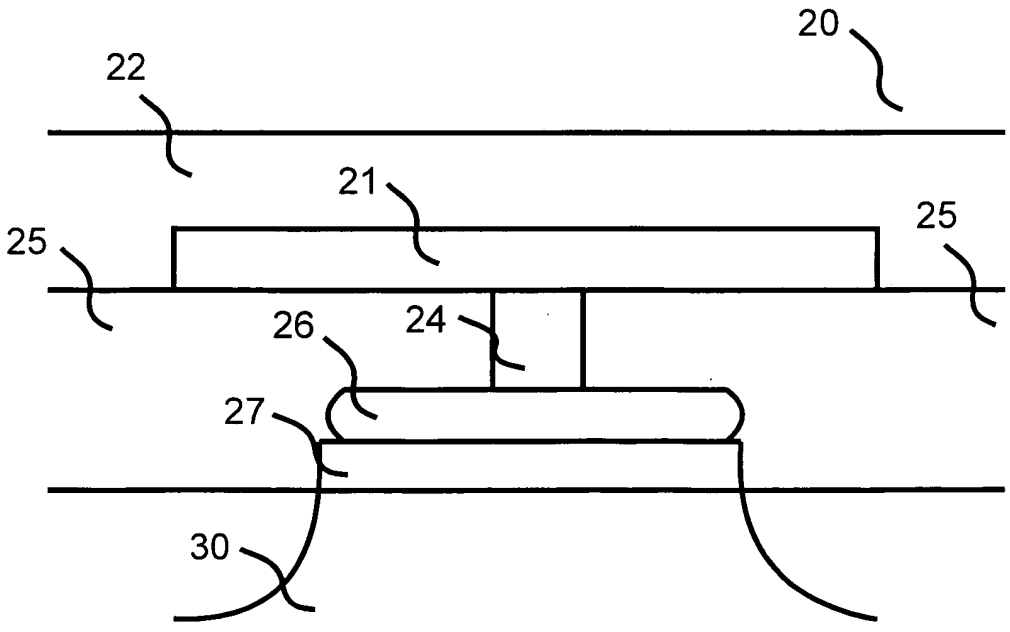


Figure 2

Prior Art

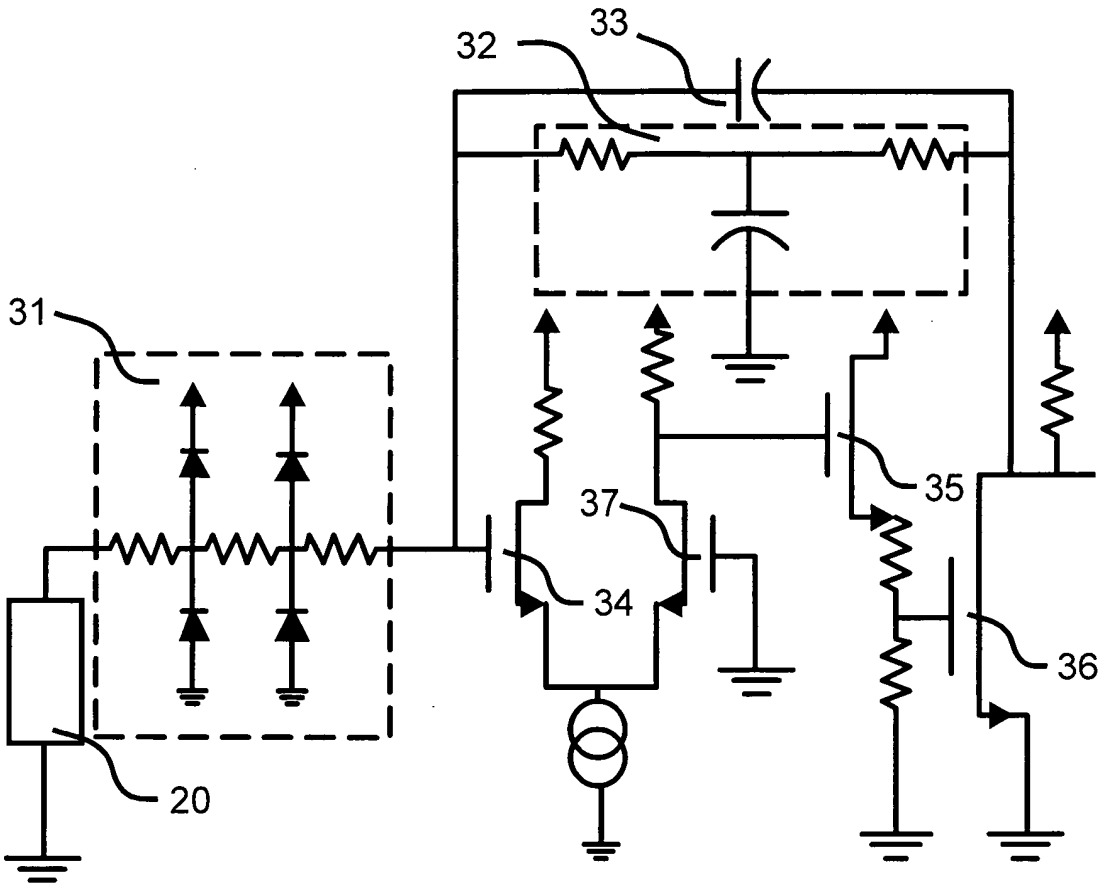
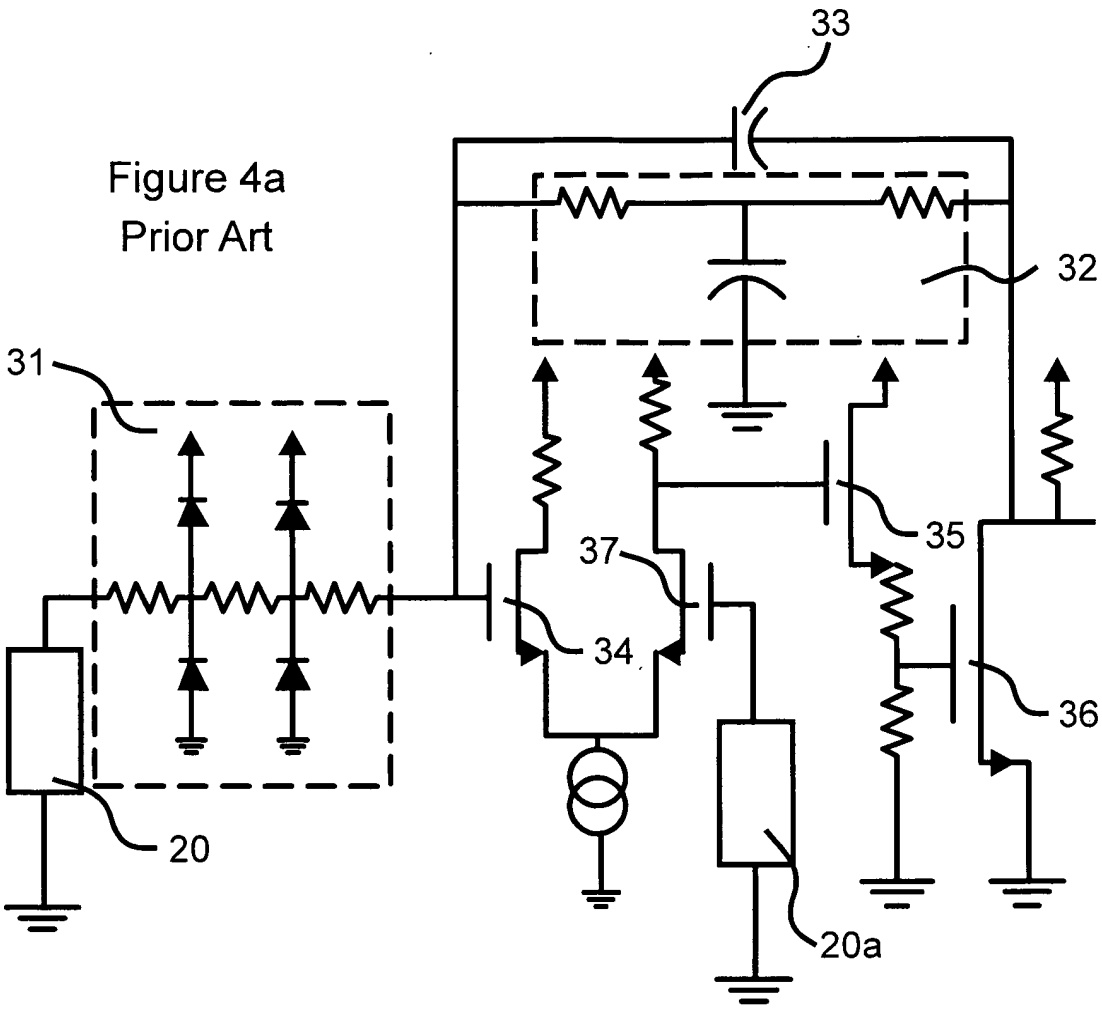


Figure 3

Prior Art

FOOTPRINT-TP02A60

Figure 4a
Prior Art



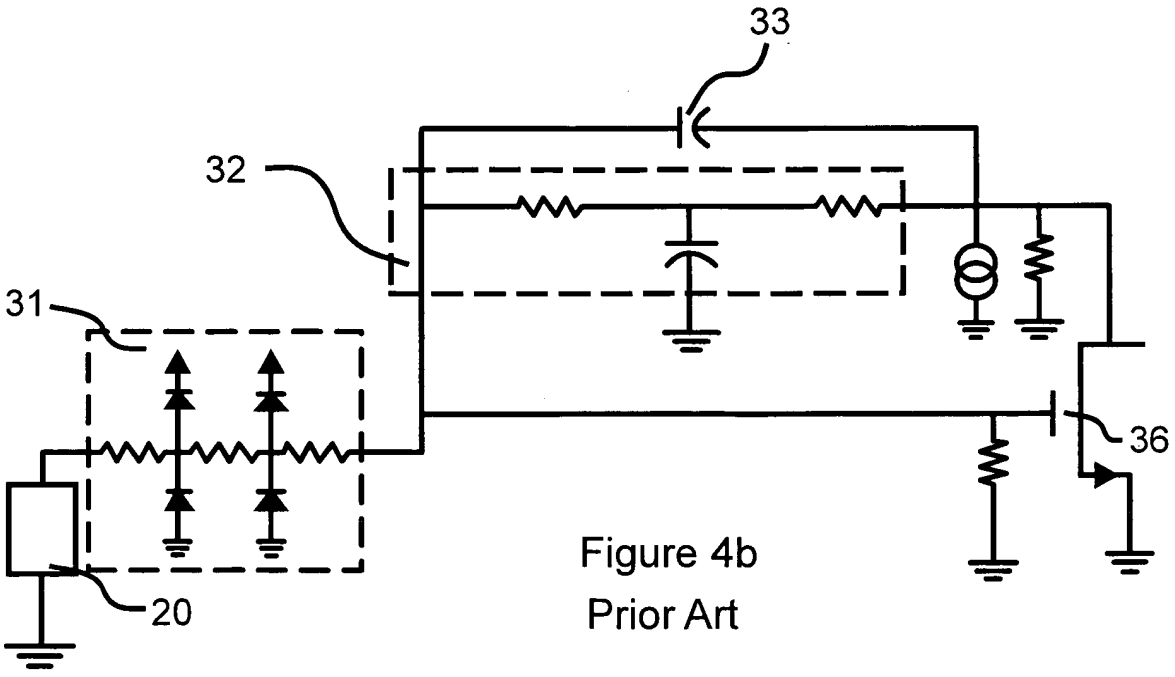


Figure 4b
Prior Art

Figure 5a

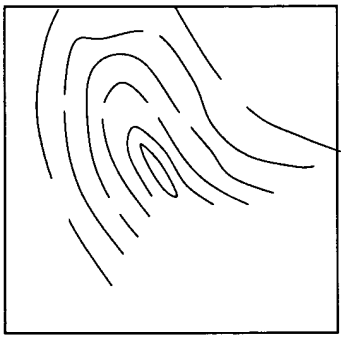


Figure 5b

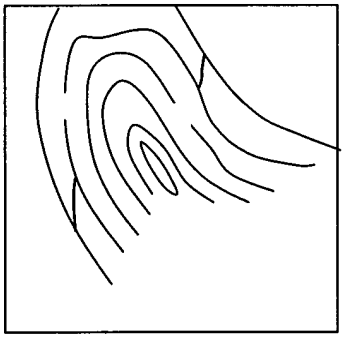
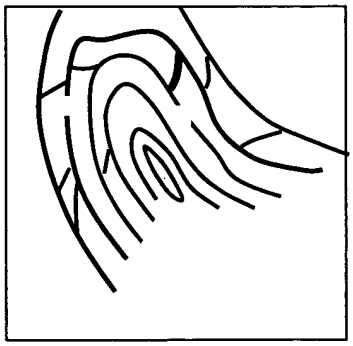


Figure 5c



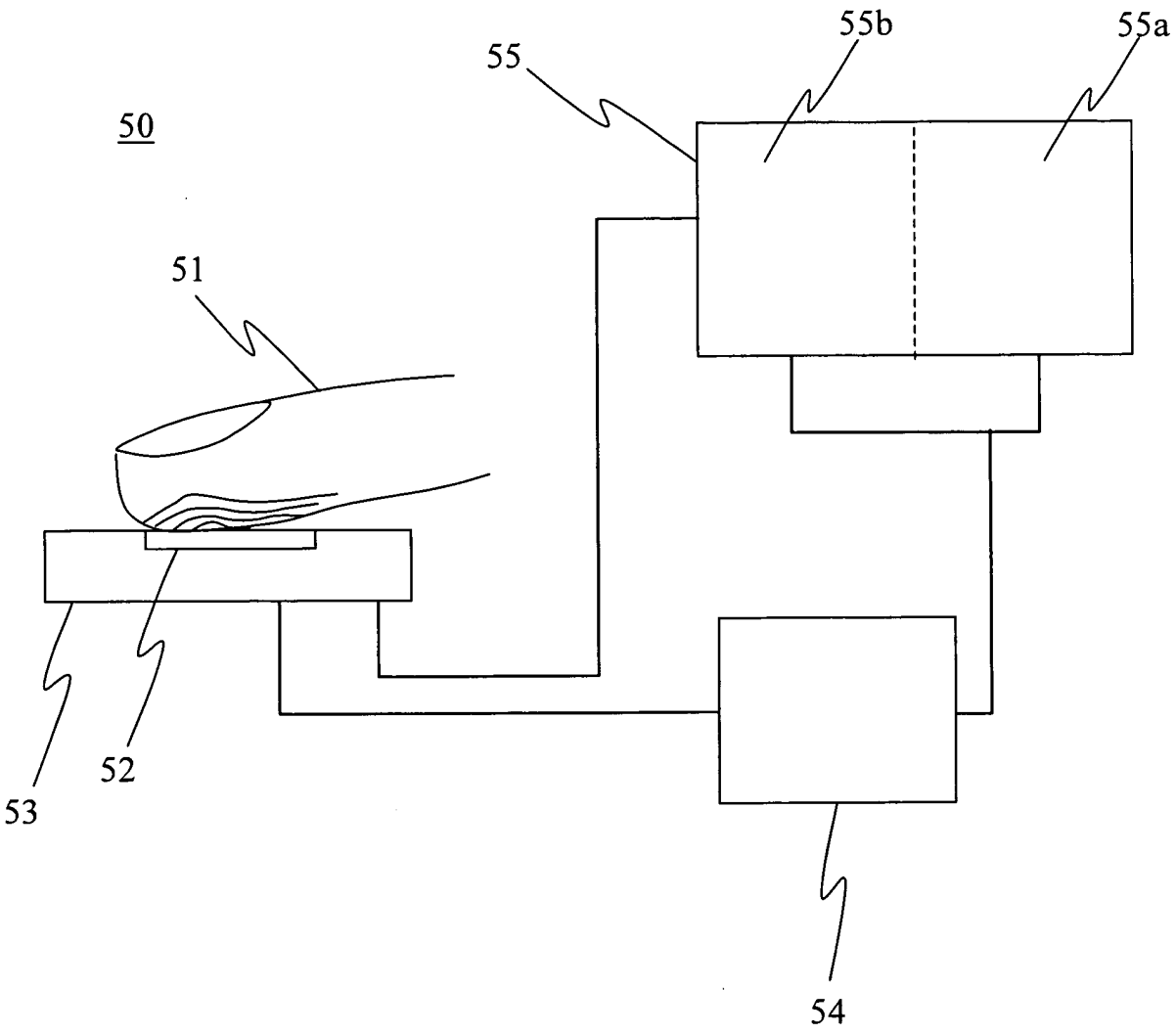


Figure 6

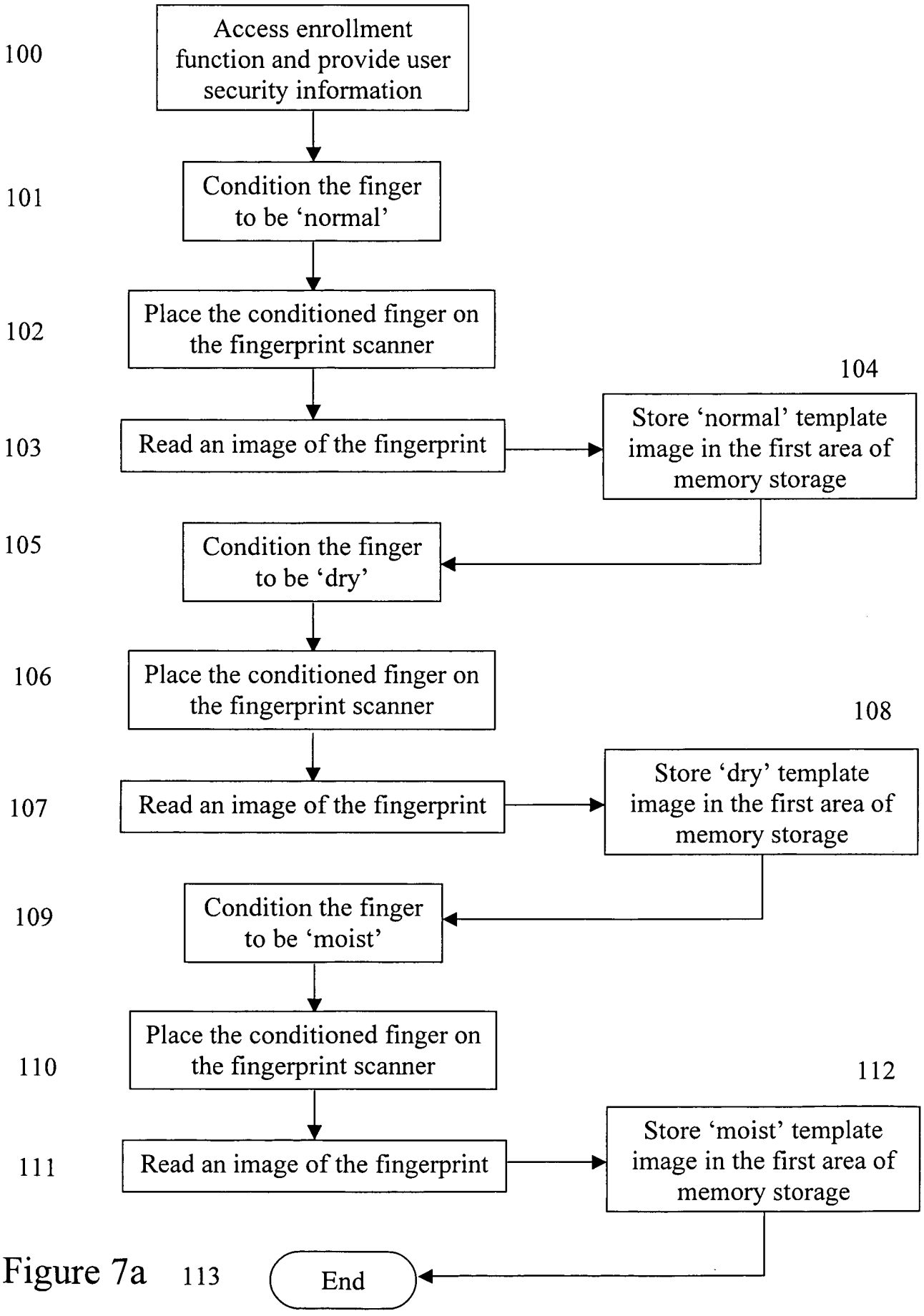

100
Access enrollment function and provide user security information
101
Condition the finger to be 'normal'
102
Place the conditioned finger on the fingerprint scanner
103
Read an image of the fingerprint
104
Store 'normal' template image in the first area of memory storage
105
Condition the finger to be 'dry'
106
Place the conditioned finger on the fingerprint scanner
107
Read an image of the fingerprint
108
Store 'dry' template image in the first area of memory storage
109
Condition the finger to be 'moist'
110
Place the conditioned finger on the fingerprint scanner
111
Read an image of the fingerprint
112
Store 'moist' template image in the first area of memory storage
113
End

Figure 7a

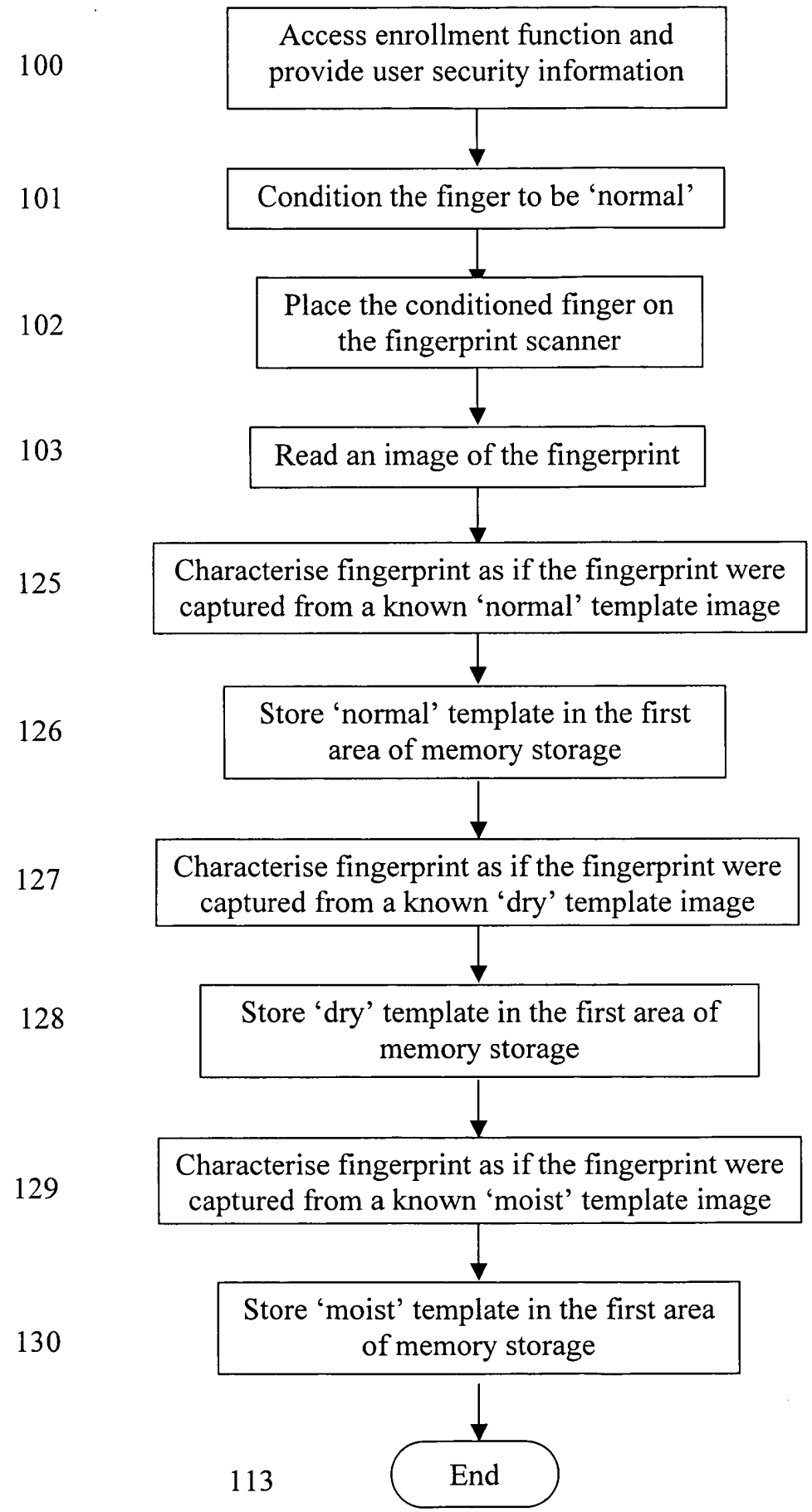

100
Access enrollment function and provide user security information
101
Condition the finger to be 'normal'
102
Place the conditioned finger on the fingerprint scanner
103
Read an image of the fingerprint
125
Characterise fingerprint as if the fingerprint were captured from a known 'normal' template image
126
Store 'normal' template in the first area of memory storage
127
Characterise fingerprint as if the fingerprint were captured from a known 'dry' template image
128
Store 'dry' template in the first area of memory storage
129
Characterise fingerprint as if the fingerprint were captured from a known 'moist' template image
130
Store 'moist' template in the first area of memory storage
113
End

Figure 7b

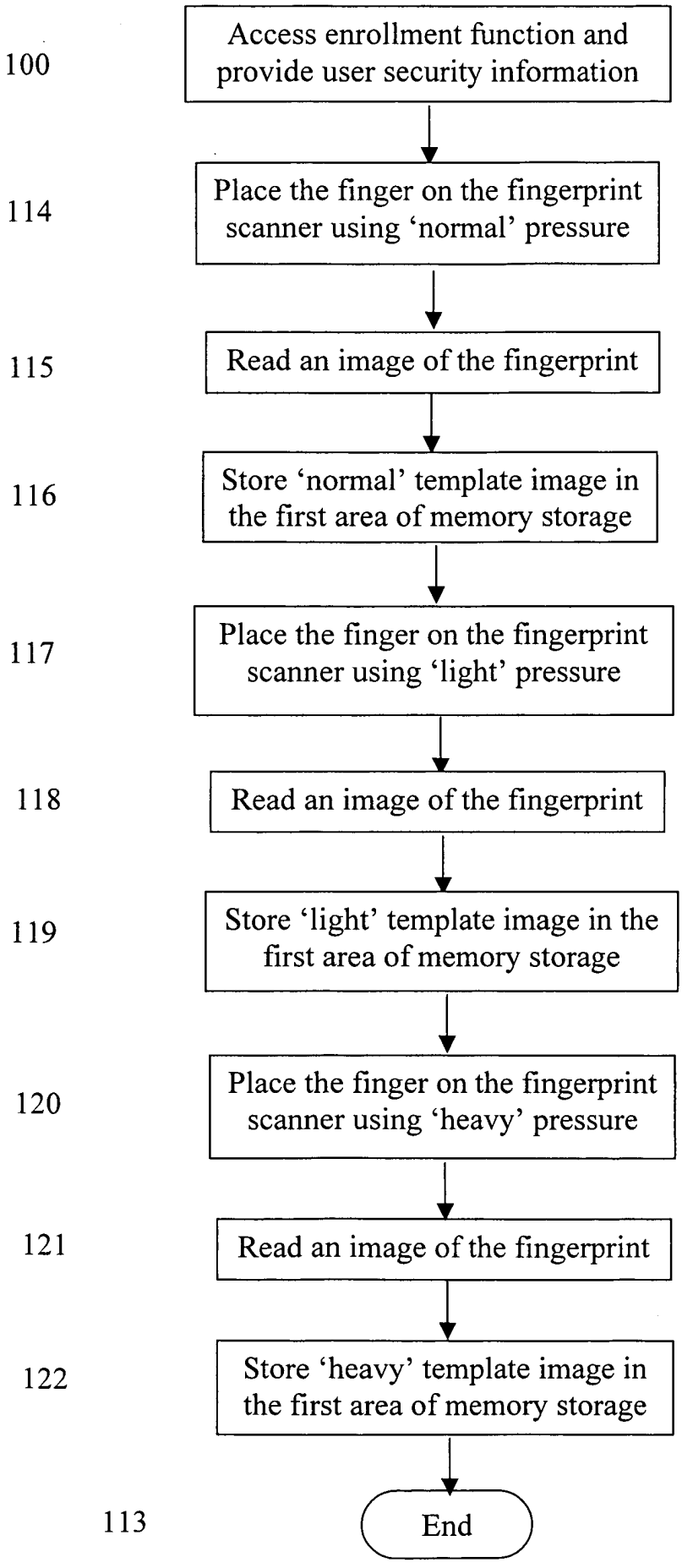

100
Access enrollment function and provide user security information
114
Place the finger on the fingerprint scanner using 'normal' pressure
115
Read an image of the fingerprint
116
Store 'normal' template image in the first area of memory storage
117
Place the finger on the fingerprint scanner using 'light' pressure
118
Read an image of the fingerprint
119
Store 'light' template image in the first area of memory storage
120
Place the finger on the fingerprint scanner using 'heavy' pressure
121
Read an image of the fingerprint
122
Store 'heavy' template image in the first area of memory storage
113
End

Figure 7c

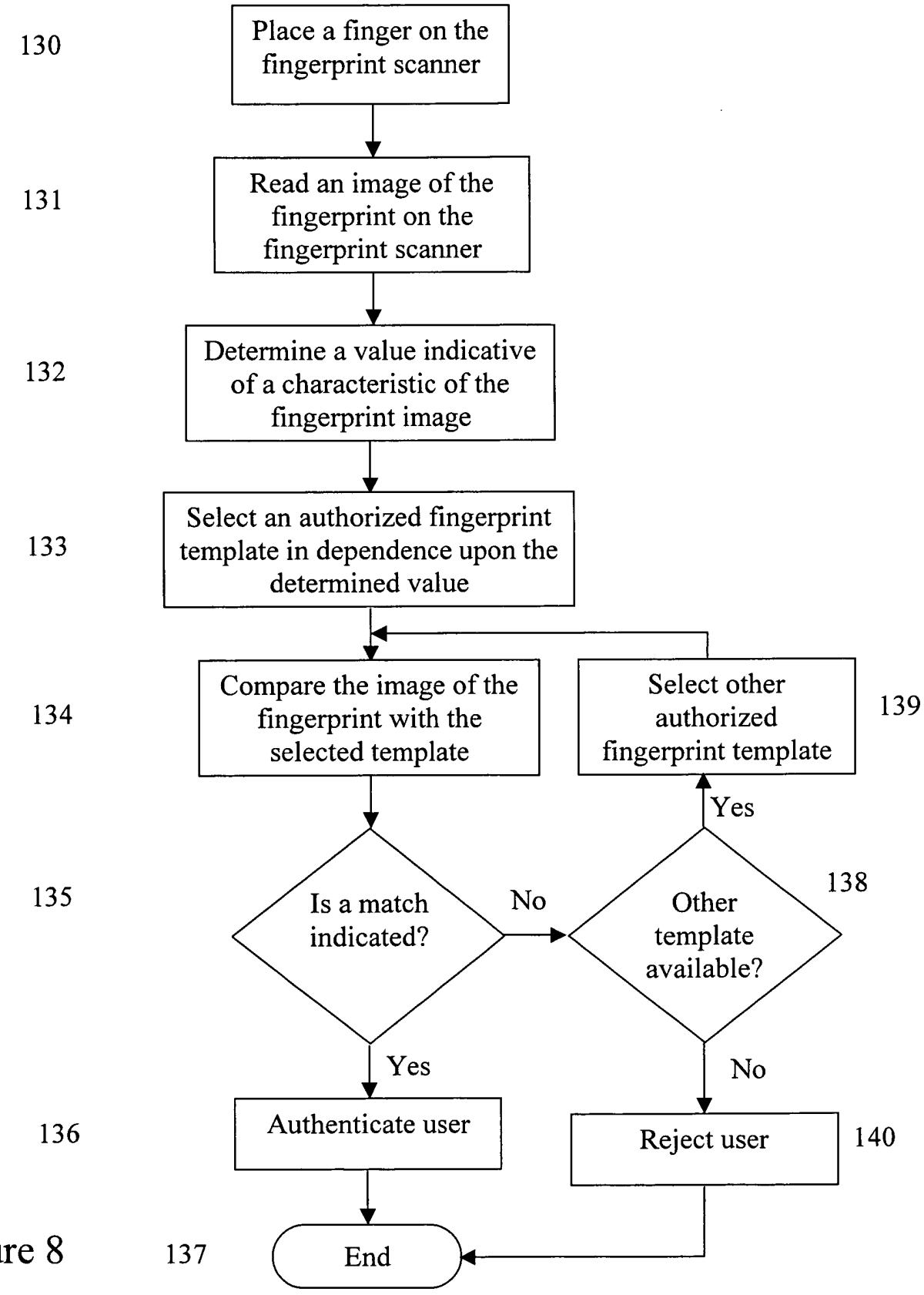

130
Place a finger on the fingerprint scanner
131
Read an image of the fingerprint on the fingerprint scanner
132
Determine a value indicative of a characteristic of the fingerprint image
133
Select an authorized fingerprint template in dependence upon the determined value
134
Compare the image of the fingerprint with the selected template
135
Is a match indicated?
No
Yes
136
Authenticate user
137
End
138
Other template available?
Yes
No
139
Select other authorized fingerprint template
140
Reject user

Figure 8

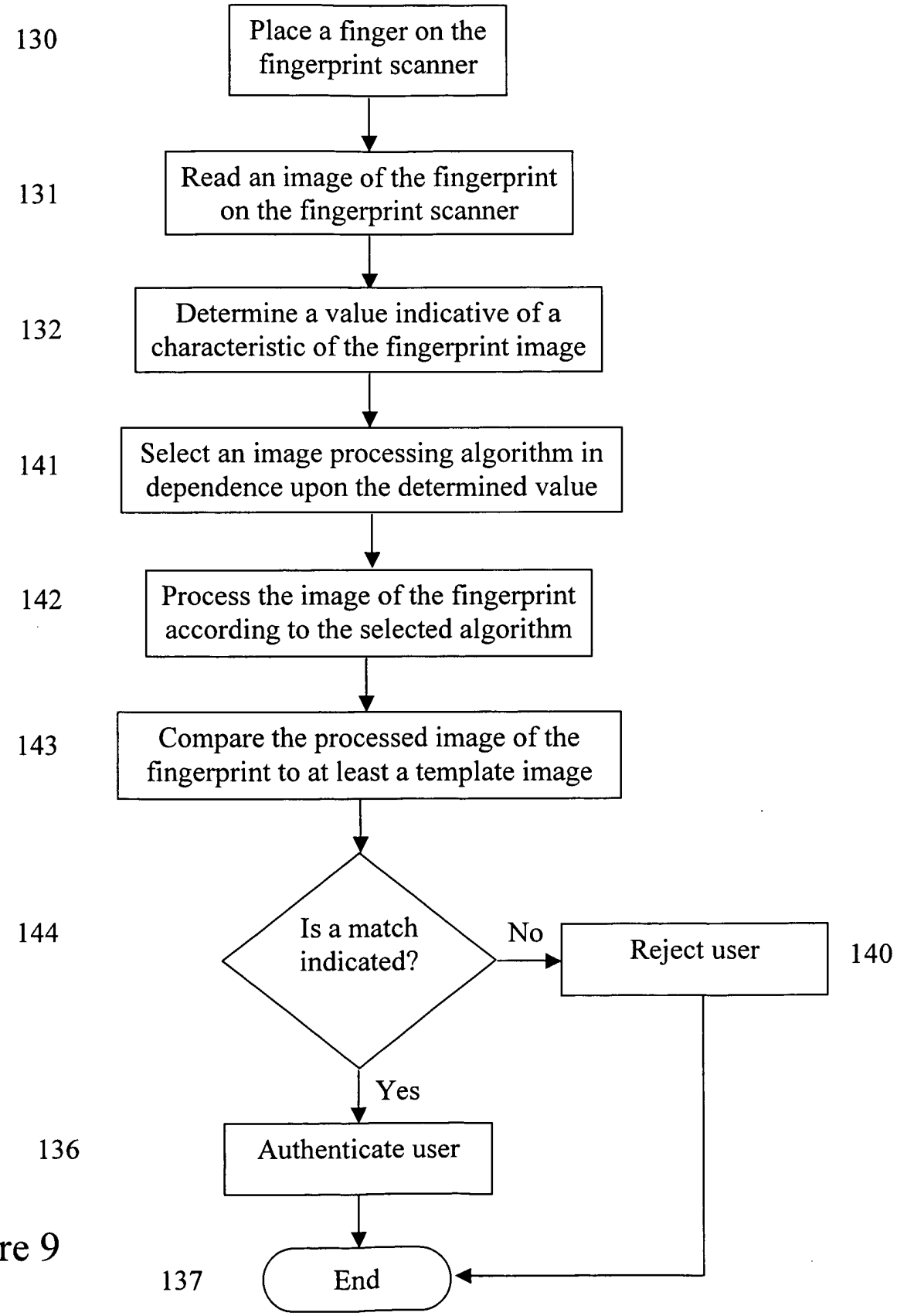

130
Place a finger on the fingerprint scanner
131
Read an image of the fingerprint on the fingerprint scanner
132
Determine a value indicative of a characteristic of the fingerprint image
141
Select an image processing algorithm in dependence upon the determined value
142
Process the image of the fingerprint according to the selected algorithm
143
Compare the processed image of the fingerprint to at least a template image
144
Is a match indicated?
No
Reject user
140
Yes
136
Authenticate user
137
End

Figure 9

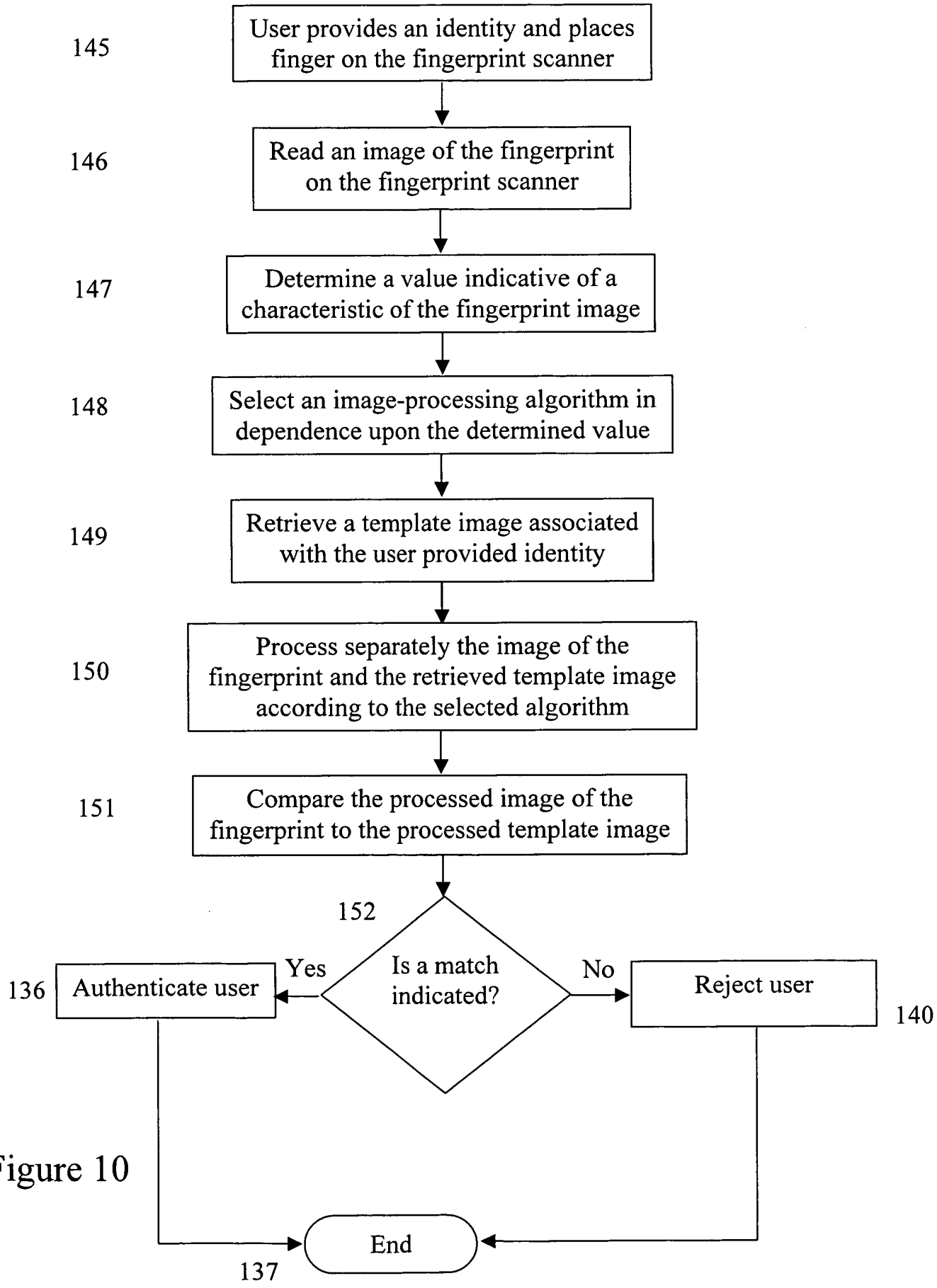

145
User provides an identity and places finger on the fingerprint scanner
146
Read an image of the fingerprint on the fingerprint scanner
147
Determine a value indicative of a characteristic of the fingerprint image
148
Select an image-processing algorithm in dependence upon the determined value
149
Retrieve a template image associated with the user provided identity
150
Process separately the image of the fingerprint and the retrieved template image according to the selected algorithm
151
Compare the processed image of the fingerprint to the processed template image
152
Is a match indicated?
Yes
No
136
Authenticate user
Reject user
140
End
137

Figure 10